

# New and interesting mites from the Geneva Museum LXIV. Oribatids from Singapore (Acari: Oribatida)

by

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With 50 figures

## ABSTRACT

**New and interesting mites from the Geneva Museum LXIV. Oribatids from Singapore (Acari: Oribatida).** — Eleven species are identified, ten of them are described as new to science. For one species it was necessary to establish a new genus: *Ocellotocepheus* gen. n. (Otocepheidae).

## INTRODUCTION

Dr. B. Hauser, curator of the Arthropod Department in the Muséum d'Histoire naturelle, Geneva, pursues since years a program of systematic exploration of the rain forest soil fauna in Southeast Asia.

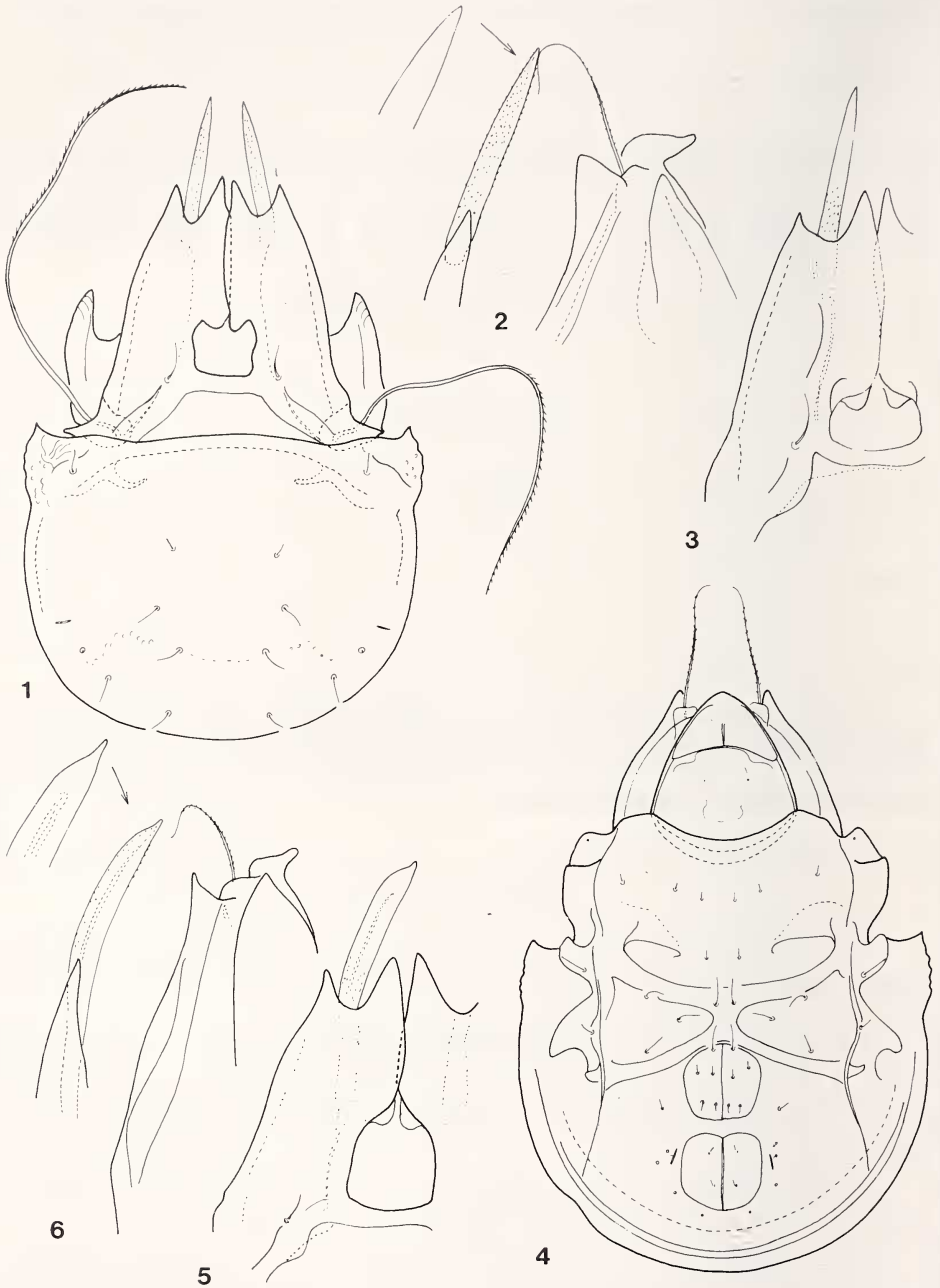
During the 1985 expedition, realized in collaboration with Dr. C. Lienhard, research officer in the same Department, he had the opportunity — thanks to the help of Prof. Dr. D. H. Murphy, Department of Zoology, National University of Singapore — at the occasion of a stopover in Singapore, to collect a soil sample in the famous nature reserve of Bukit Timah.

Owing to the kindness of Dr. B. Hauser I had the opportunity to study this material, which revealed a very rich and rather interesting Oribatid fauna.

The greatest surprise was the large number of members of the families Otocepheidae and Dolicheremaeidae. This single soil sample yielded 8 new species, one of them representing a new genus. This supports my previous supposition that the centre of evolution of this

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FIGS 1-6.

*Microzetes flagellifer* sp. n. — 1: body in dorsal view, 2: rostrum and end of lamella in lateral view, 3: lamella, 4: body in ventral view.

*Microzetes tuberculatus* Mahunka, 1987 — 5: lamella, 6: rostrum and end of lamella in lateral view.

particular group of Oribatid mites must be in Southeast Asia. In earlier works (BALOGH 1970 and MAHUNKA 1973) this richness in species was also striking.

The subsequently listed species have been recovered from the sample deriving from the following locality:

#### LOCALITY

Sum-85/6: Singapour: Bukit Timah Nature Reserve: Taban Valley, prélèvement de sol dans les angles formés par les contreforts d'un grand arbre au début du sentier Taban Circle, 70 m, 6.XI.1985, leg. B. Hauser (extraction par appareil Berlese).

#### DESCRIPTIONS AND IDENTIFICATIONS

##### MICROZETIDAE Grandjean 1936

##### *Microzetes flagellifer* sp. n.

**Measurements:** Length: 193-206  $\mu\text{m}$ , width: 145-153  $\mu\text{m}$ .

**Prodorsum:** Rostrum conical in dorsal view and nasiform in lateral view. Rostral setae flagellate, arising on large tubercles. Lamellae very large, touching and overlapping medially. Two pairs of well-developed lamellar cuspis present, median pair longer than outer ones. Lamellar setae thick, spiniform (Fig. 3). Interlamellar setae short, arising on the inner surface of lamellae. Tutorium (Fig. 2) with a broad, triangular cuspis. Sensillus very long, filiform, directed outwards and backwards, its basal part not ciliate.

**Notogaster:** Posterior part of notogaster with some weak hollows, also some secretion-granules visible. Notogastral setae very short. Pteromorphae small, their anterior apex sharply pointed, their surface and margin tuberculate, some rugae also visible (Fig. 1).

**Lateral part of prodorsum:** Anterior margin of pedotecta I with transverse rugae. Sejugal region laterally with some granules.

**Coxisternal region:** Surface without any sculpture. Epimeral setae minute on epimeres 1 and 2, short on epimeres 3 and 4. Apodema short, sejugal and 4th epimeral borders strong, consisting of transverse bands which are connected medially (Fig. 4).

**Anogenital region:** All setae of this region — excepting the anterior pair of genital setae — very short, hardly visible.

**Material examined:** Holotype: Sum-85/6; 10 paratypes: from the same sample. Holotype and 7 paratypes: MHNG \* and 3 paratypes (1214-PO-87): HNHM \*\*.

\* MHNG = deposited in the Muséum d'Histoire naturelle, Genève.

\*\* HNHM = deposited in the Hungarian Natural History Museum, Budapest, with identification number of the specimens in the Collection of Arachnida.

**Remarks:** The new species stands very close to the recently described *Microzetes tuberculatus* Mah., 1987 from Sabah. The two species may be distinguished by the following characters:

*M. tuberculatus* Mah., 1987

*M. flagellifer* sp. n.

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| <ol style="list-style-type: none"> <li>1. Lamellar setae bean-pod-shaped (Fig. 5).</li> <li>2. Basal tube of lamellar setae very long, half as long as length of setae.</li> <li>3. Tutorium narrow, with a sharply pointed apex (Fig. 6).</li> </ol> | <ol style="list-style-type: none"> <li>1. Lamellar setae spiniform (Fig. 3).</li> <li>2. Basal tube of lamellar setae short, only a quarter as long as length of setae.</li> <li>3. Tutorium broad, with a blunt cuspis.</li> </ol> |
|---|---|

OTOCEPHEIDAE Balogh, 1961

*Acrotopepheus lienhardi* sp. n.

**Measurements:** Length: 1053-1158  $\mu\text{m}$ , width: 372-470  $\mu\text{m}$ .

**Prodorsum:** Rostral part strongly punctate and foveolate. Lamellae broad, rounded anteriorly. Rostral and lamellar setae simple, setiform, interlamellar ones very short, slightly dilate, exobothridial ones minute, hardly visible. Tutorium well developed, but not touching lateral lamelliform expansion (Fig. 7). Sensillus with a fusiform head. Two pairs of prodorsal condyles present (Fig. 8), median pair (co. pm.) not smaller than the narrow and angular lateral ones (co. pl.).

**Notogaster:** Dorsosejugal suture concave. No median condyles, lateral ones (co. ul.) angulate. Among notogastral setae the four anterior pairs: *c*, *la*, *lm* and *lp* short, bacilliform, blunt at tip, all others much longer, setiform, fine at tip (Fig. 12). All well ciliate.

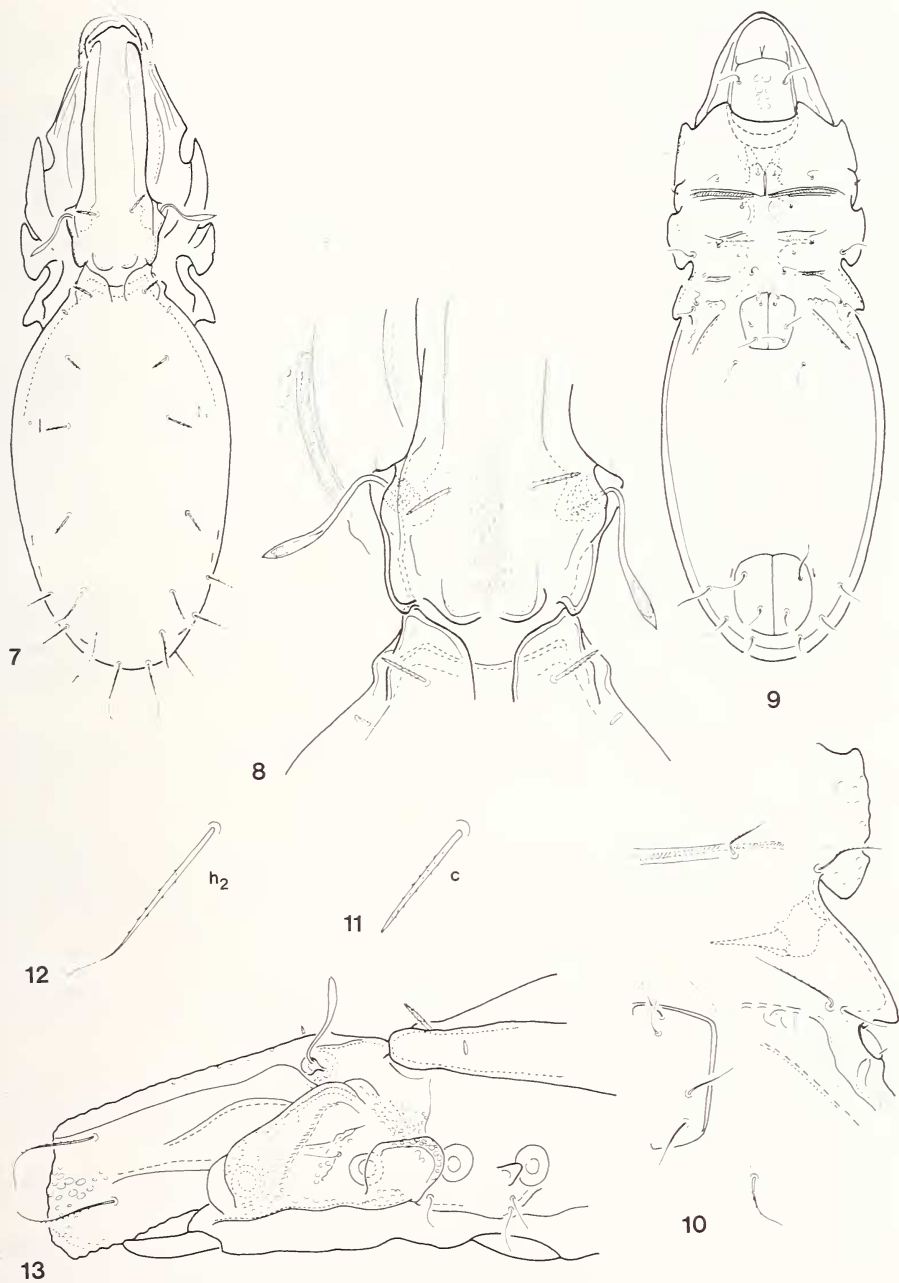
**Lateral part of podosoma:** Laterally and pedotecta I, pd. II-III well foveolate (Fig. 13). Sejugal region pustulate laterally.

**Coxisternal region:** Apodeme 2 connected with the short sternal one, ap. sej. not touching medially. Epimeres III and IV open posteriorly, but a characteristic ornamentation (Fig. 10) observable in this region. All epimeral setae short.

**Anogenital region:** All setae fine, setiform, comparatively long (Fig. 9). Setae  $ad_1$  longer than  $ad_2 > ad_3$ . Lyrifissures *iad* originating very near to anal aperture.

**Legs:** Type of ultimate setae: L-S-S-S. Solenidium  $\omega_1$  and  $\omega_2$  blunt art tip,  $\omega_1$  slightly longer than  $\omega_2$ . No dilate, plumose setae on leg IV.

**Material examined:** Holotype: Sum-85/6; 4 paratypes: from the same sample. Holotype and 3 paratypes: MHNG and 1 paratype (1215-PO-87): HNHM.



Figs 7-13.

*Acrotopeheus lienhardi* sp. n. — 7: body in dorsal view, 8: dorsosejugal region with condyles, 9: body in ventral view, 10: lateral part of coxisternal region, 11: seta *c*, 12: seta *h*<sub>2</sub>, 13: lateral part of prodorsum.

**R e m a r k s :** The new species stands closest to *Acrotocepheus heterosetiger* Aoki, 1965, however, it is distinguished from it by the short *c*, *la*, *lm* and *lp* setae and the long adanal setae.

I dedicate the new species to Dr. C. Lienhard (Geneva Museum) for his precious help in this collecting trip.

### ***Acrotocepheus wallacei* sp. n.**

**M e a s u r e m e n t s :** Length: 980-1394  $\mu\text{m}$ , width: 453-552  $\mu\text{m}$ .

**P r o d o r s u m :** Rostrum slightly nasiform, strongly widened laterally (Fig. 14). Surface of rostrum smooth, lamellar surface scarcely foveolate. Rostral and lamellar setae simple, setiform. Tutorium absent, however, an alveolate surface present in this region (Fig. 15). Lateral lamelliform expansion arched, not directed immediately towards the insertion of rostral setae. Interlamellar setae short, bacilliform. Interlamellar region with some longitudinal, arcuate wrinkles. Sensillus directed outwards, head fusiform, with a sharply pointed apex. Two pairs of well-developed notogastral condyles present, co. pl. rounded, co. pm. triangulate (Fig. 17).

**N o t o g a s t e r :** Dorsosejugal suture straight medially. Lateral and median condyles fused, as in *A. duplicornutus* Aoki, 1965, and appearing to be of double structure. Both pairs angulate, nearly triangulate in dorsal view. A pair of long wrinkles running posteriorly from insertion of setae *c*. Notogastral surface scarcely foveolate. Notogastral setae bacilliform, well ciliate on their distal half.

**L a t e r a l p a r t o f p o d o s o m a :** (Fig. 18): Pedotecta I finely foveolate, pedotecta II-III coarsely pustulate. A small part of the sejugal region also pustulate laterally.

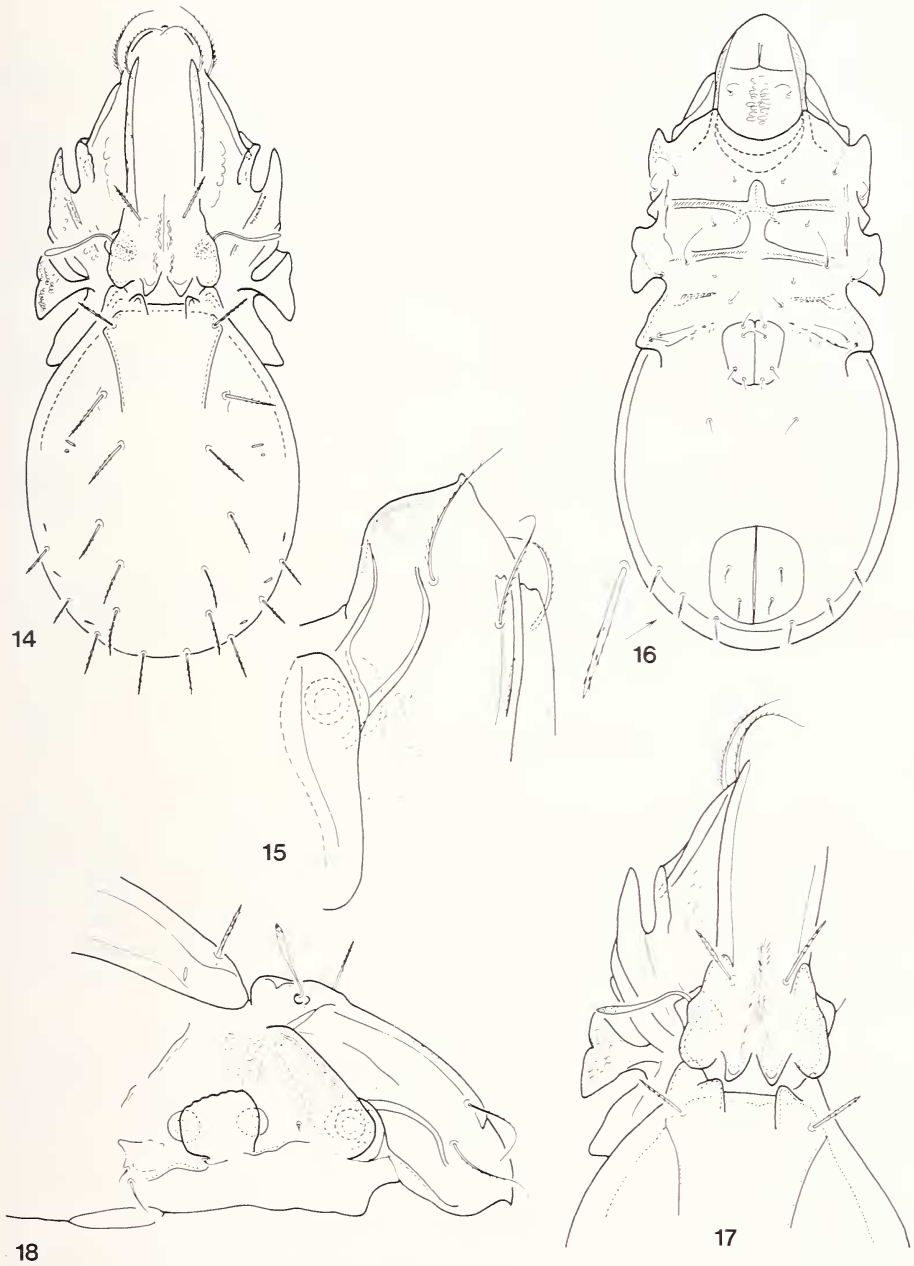
**C o x i s t e r n a l r e g i o n :** Apodeme 2 long, connected with the short sternal apodeme. Sejugal apodeme ending free medially. Epimere 4 partly framed by borders 4, behind them 3-4 long ridges of different lengths (Fig. 16). Among epimeral setae *1a*, *2a* and *3a* minute and *1b* standing laterally, very far from *1a*, *3b* and *4b* long, directed inwards.

**A n o g e n i t a l r e g i o n :** Genital and aggenital setae, thin, setiform. Anal and some adanal setae thicker, latter ones similar to notogastral setae. Lyrifissures *iad* originating transversally, far from anal aperture.

**L e g s :** Type of ultimate setae: L-S-S-S. Solenidium  $\omega_1$  of legs I strongly curved forwards,  $\omega_2$  much thinner and straight than  $\omega_1$ . Setae *pv* on tarsus and *v* on tibia of leg IV strongly ciliate.

**M a t e r i a l e x a m i n e d :** Holotype: Sum-85/6; 13 paratypes from the same sample. Holotype and 8 paratypes: MHNG and 5 paratypes (1216-PO-87): HNHM.

**R e m a r k s :** On the basis of the shape of notogastral condyles and the position of lyrifissures *iad*, the new species stands close to *A. duplicornutus* Aoki, 1965, however, the two species are distinguished by the following features:



FIGS 14-18.

*Acrotocepheus wallacei* sp. n. — 14: body in dorsal view, 15: anterolateral part of prodorsum, 16: body in ventral view, 17: dorsosejugal region with condyles, 18: lateral part of prodorsum.

*A. duplicornutus* Aoki, 1965*A. wallacei* sp. n.

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| <ol style="list-style-type: none"> <li>1. Interlamellar setae longer than sensillus.</li> <li>2. Co. pm. round, weakly developed.</li> <li>3. Notogastral setae long, setae <i>c</i> reaching to the insertion of setae <i>1a</i>.</li> <li>4. Distance between setae <i>1a</i> and <i>1b</i> about the same as that between <i>1b</i> and <i>1c</i>.</li> <li>5. Anal setae longer than adanal ones, latter strongly arched.</li> </ol> | <ol style="list-style-type: none"> <li>1. Interlamellar setae much shorter than sensillus.</li> <li>2. Co. pm. triangular, strongly developed.</li> <li>3. Notogastral setae short, setae <i>c</i> only half as long as the distance between setae <i>c</i> and <i>1a</i>.</li> <li>4. Distance between setae <i>1a</i> and <i>1b</i> much greater than that between <i>1b</i> and <i>1c</i>.</li> <li>5. At least setae <i>an</i><sub>2</sub> shorter than adanal ones, latter mostly straight.</li> </ol> |
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I dedicate this new species to the famous naturalist A. R. Wallace, author of the classic book "The Malay Archipelago" (1869), who collected intensively in Bukit Timah.

**Archegotocepheus brevisetus** sp. n.

**M e a s u r e m e n t s :** Length: 688-916  $\mu$ m, width: 307-430  $\mu$ m.

**P r o d o r s u m :** Rostrum sparsely punctate. Lamellae long, arched medially, surface foveolate. Tutorium present. External lamelliform expansion strongly curved anteriorly and directed to the insertion of rostral setae (Fig. 19). Exobothridial setae minute. Rostral and lamellar setae simple, setiform, interlamellar ones much shorter and blunt at tip. Sensillus with small, finely roughened head. In the interlamellar region some strong, mostly longitudinally running wrinkles or rugae observable. Two pairs of strong prodorsal condyles present (Fig. 21).

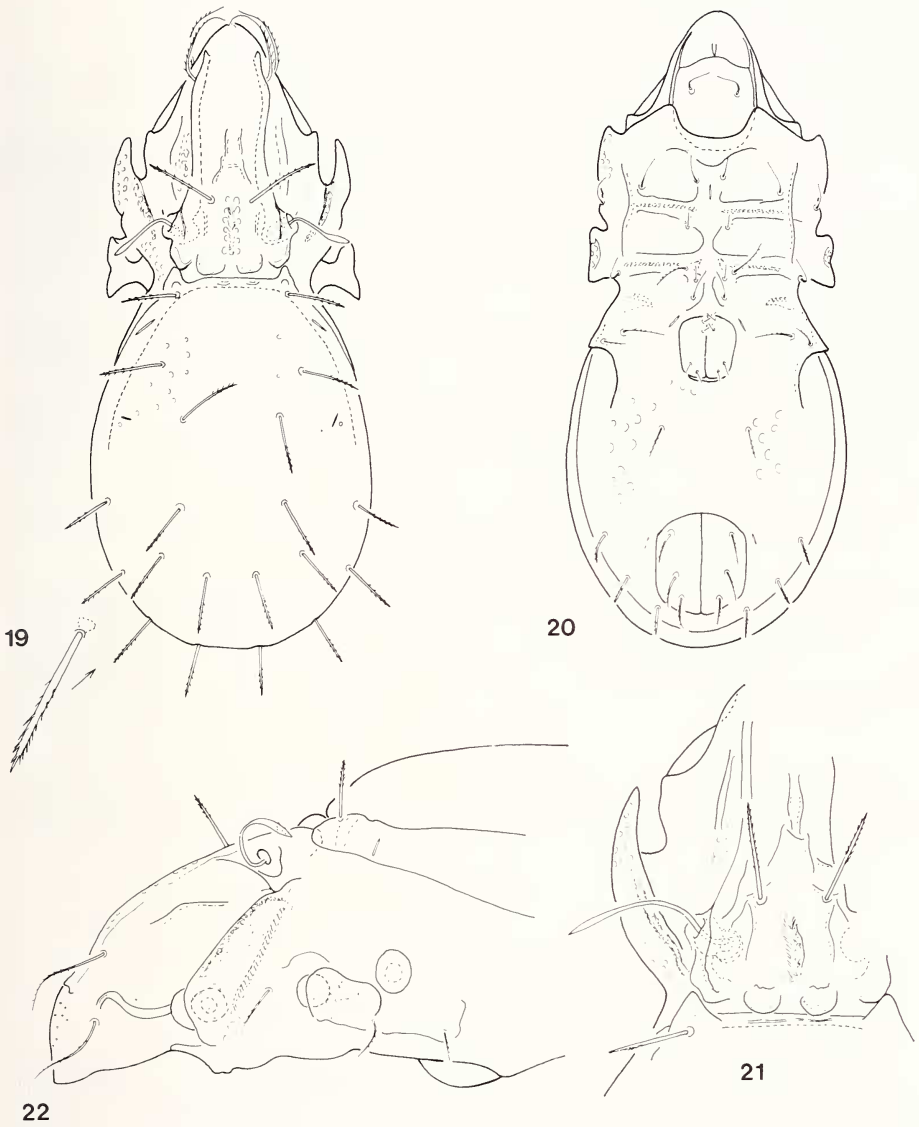
**N o t o g a s t e r :** Notogastral surface scarcely foveolate. Notogastral setae short, similar to interlamellar ones, their distal end well ciliate. Setae *c* much shorter than the distance between *c* and *1a*, setae *1m* not reaching to insertion of *1p*, setae *p*<sub>1</sub> and *p*<sub>2</sub> (63  $\mu$ m) much shorter than the distance between them (71  $\mu$ m). Median notogastral condyles absent, lateral pair large.

**L a t e r a l p a r t o f p o d o s o m a :** Surface of pedotecta I and II-III well foveolate (Fig. 22). Pedotecta II-III slightly asymmetrical, fish-tail-shaped.

**C o x i s t e r n a l r e g i o n :** Apodemes and borders well observable, but epimeral region open posteriorly. Epimeral setae short, *1c* originating behind pedotecta I. Setae *2a* and *3a* particularly short, *4a* much longer than these (Fig. 20).

**A n o g e n i t a l r e g i o n :** Sparsely foveolate laterally. Four pairs of short genital setae, the anterior pair much shorter than the others. Aggenital and three pairs of





FIGS 19-22.

*Archegotocepheus brevisetus* sp. n. — 19: body in dorsal view, 20: body in ventral view, 21: dorsosejugal region with condyles, 22: lateral part of prodorsum.

anal setae setiform, adanal setae blunt at tip, the latter ones are very short (25  $\mu\text{m}$ ), much shorter than the distance between them.

**M a t e r i a l e x a m i n e d :** Holotype: Sum-85/6; 11 paratypes: from the same sample. Holotype and 7 paratypes: MHNG and 4 paratypes (1217-PO-87): HNHM.

**R e m a r k s :** The new species stands very close to *ArcheROTOCEPHEUS singularis* Mahunka, 1988, the type-species of this recently described genus. The two species are distinguished as follows:

*singularis* Mahunka, 1988

*brevisetus* sp. n.

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|---|---|
| 1. Interlamellar setae much longer than rostral and lamellar ones.  | 1. Interlamellar setae much shorter than rostral and lamellar ones.                 |
| 2. Setae <i>c</i> longer than distance between setae <i>c</i> and <i>1a</i> .   | 2. Setae <i>c</i> much shorter than distance between setae <i>c</i> and <i>1a</i> . |
| 3. All notogastral setae long (e.g. <i>h</i> <sub>3</sub> : 108 $\mu\text{m}$ ).  | 3. All notogastral setae short (e.g. <i>h</i> <sub>3</sub> : 59 $\mu\text{m}$ ).    |
| 4. Adanal setae long, <i>ad</i> <sub>1</sub> longer than distance between <i>ad</i> <sub>1</sub> and <i>ad</i> <sub>2</sub> . | 4. Adanal setae short, all much shorter than distance between them.                 |
| 5. Anterior margin of epimeral region foveolate.  | 5. Anterior margin of epimeral region smooth.                                       |

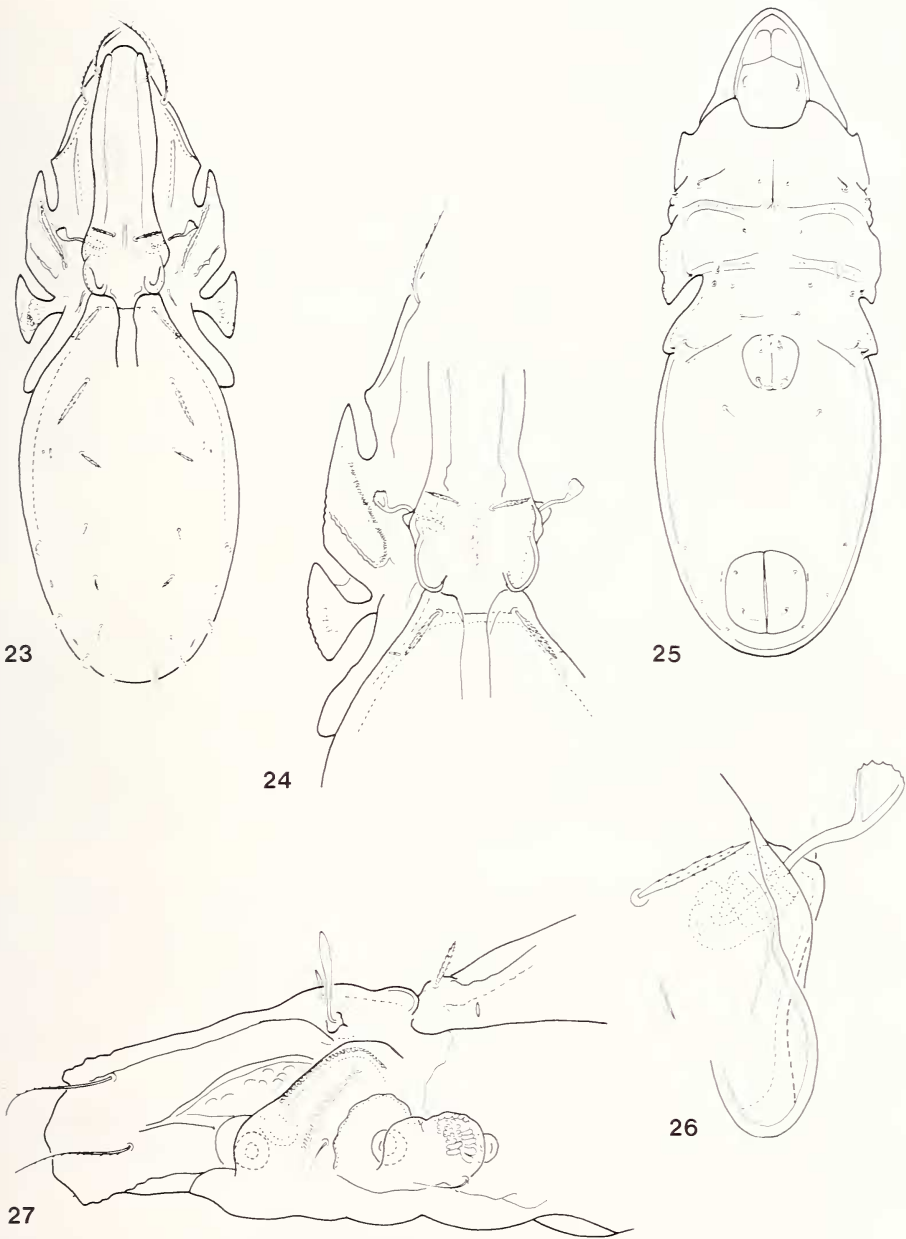
The third known species, *A. latus* (Aoki, 1965), is distinguished from the new one by the length of the notogastral setae.

**Otocephus hauseri** sp. n.

**M e a s u r e m e n t s :** Length: 874-1044  $\mu\text{m}$ , width: 307-367  $\mu\text{m}$ .

**P r o d o r s u m :** Lamellae rounded anteriorly, lamellar and rostral setae setiform, distinctly ciliate. Interlamellar setae short, slightly fusiform. Lateral lamelliform expansion long, not reaching the insertion of rostral setae, tutorium also well developed, connected with spa. 1. (Fig. 27). Sensillus clavate, anterior margin of its head dentate (Fig. 26). Exobothridial setae minute, hardly discernible under the bothridial plate. Surface of rostrum punctate and foveolate, also some foveolae visible in the interlamellar region. Rest of the surface of prodorsum smooth. One pair of large, rounded, prodorsal condyles present (Fig. 24).

**N o t o g a s t e r :** Surface finely punctate. In habitus (Fig. 23) and shape similar to *Otocephus heterosetiger* Aoki, 1965. Very great differences existing among notogastral setae: *c*, *1a*, *1m* and *h*<sub>2</sub> clearly fusiform, as the interlamellar setae, setae *1a* the longest of all, other setae simple, short, blunt, all finely ciliate.



FIGS 23-27.

*Otocephalus hauseri* sp. n. — 23: body in dorsal view, 24: dorsosejugal region, 25: body in ventral view, 26: sensillus with lateral condyle, 27: lateral part of prodorsum.

**Lateral part of podosoma:** Pedotecta I smooth, pedotecta II-III fish-tail-shaped (Fig. 27). Setae *lc* arising behind pedotecta I, anterior to the slit between pedotecta I and subpedotecta (sensu AOKI 1965).

**Coxisternal region:** Among the apodemes, ap. 2, ap. sej. and a short part of sternal ones well developed. Posterior border of this region straight. Epimeral setae of different lengths, setae *lb* the longest of all setae, *la*, *2a*, *3a* minute (Fig. 25).

**Anogenital region:** All setae of this region very short or minute. Lyrifissures *iad* in adanal position.

**Legs:** Type of ultimate setae: L-S-S-S. Solenidium  $\omega_1$  longer than  $\omega_2$ ,  $\epsilon$  minute. Setae *pv* and *v* on tibia dilate and strongly ciliate.

**Material examined:** Holotype: Sum-85/6; 6 paratypes: from the same sample. Holotype and 4 paratypes: MHNG, and 2 paratypes (1218-PO-87): HNHM.

**Remarks:** The new species stands close to *O. heterosetiger* Aoki, 1965. It is distinguished from it by the dilated notogastral setae and the shape of the sensillus.

I dedicate this new species to my friend Dr. B. Hauser (Geneva Museum), the collector of this and other very rich soil material.

#### ***Dolicheremaeus murphyi* sp. n.**

**Measurements:** Length: 656-891  $\mu\text{m}$ , width: 276-367  $\mu\text{m}$ .

**Prodorsum:** Lateral lamelliform expansion weakly developed (Fig. 29), directed toward the insertion of rostral setae but not reaching it. Tutorium absent. Lamellae long but simple, traversing bothridium basally (Fig. 28). Rostral and lamellar setae setiform, unilaterally ciliate. Interlamellar setae long and spiniform, like notogastral setae. Exobothridial setae short. Sensillus very long, directed outwards, slightly dilated medially, surface finely roughened. Exobothridial surface pustulate. Median prodorsal condyles very wide, lateral pair small (Fig. 32). Some irregular foveolae visible in the interlamellar region.

**Notogaster:** Notogaster narrowed anteriorly, surface ornamented by foveolae. Ten pairs of nearly equal notogastral setae present, *ta=te*, *p<sub>3</sub>* and *r<sub>3</sub>* slightly shorter than the others. All long and spiniform. Lateral notogastral condyles well developed, much bigger than the median ones. An unpaired median condyle also present.

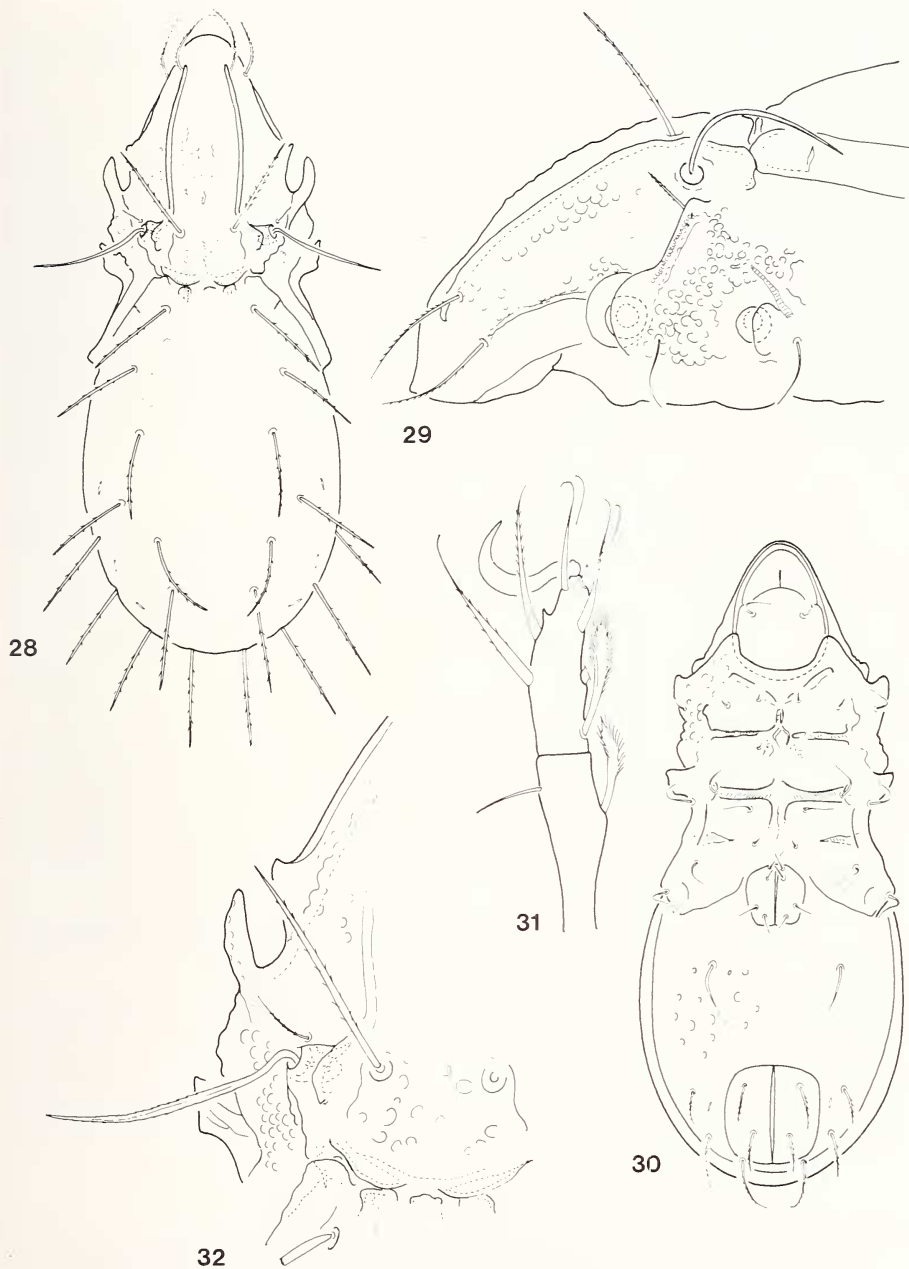
**Coxisternal region:** Mentum smooth, epimeral surface with some rugae laterally. Epimeral borders hardly observable, but the region is well framed posteriorly (Fig. 30).

**Anogenital region:** Surface of genital plate smooth, anal and ventral plate foveolate. Genital and aggenital setae setiform, the latter ones extremely long, they are the longest ventral setae. Anal and adanal setae similar to notogastral ones, *ad<sub>1</sub>* much longer than *ad<sub>3</sub>*.

**Legs:** Type of the ultimate setae of tarsus: L-L-S-S.

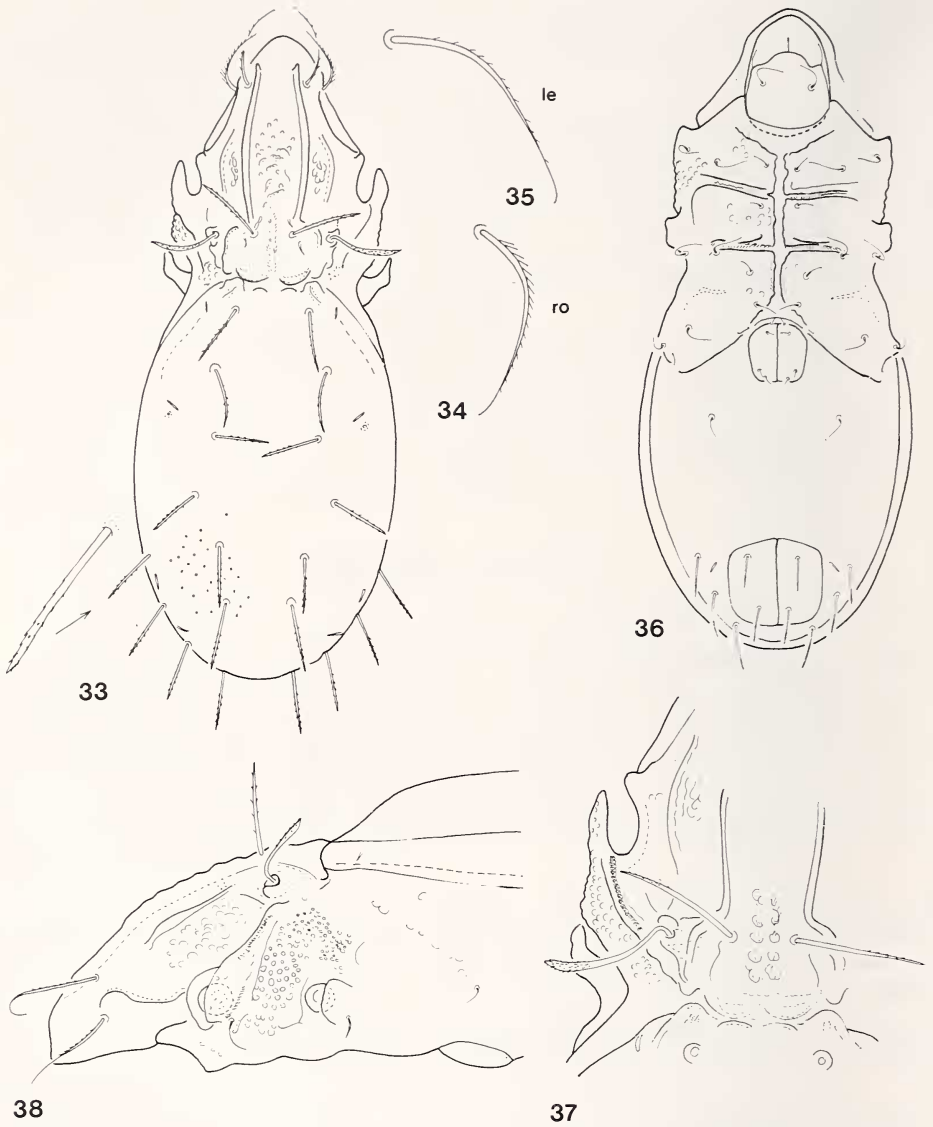
**Material examined:** Holotype: Sum-85/6; 21 paratypes: from the same sample. Holotype and 14 paratypes: MHNG and 7 paratypes (1219-PO-86): HNHM.

**Remarks:** The new species belongs to a group which is characterised by a long, nearly setiform sensillus. It is distinguished from all heretofore known species of this group by the unpaired median notogastral condyle and the extremely long aggenital setae.



FIGS 28-32.

*Dolicheremaeus murphyi* sp. n. — 28: body in dorsal view, 29: lateral part of prodorsum, 30: body in ventral view, 31: tibia and tarsus of leg IV, 32: dorsosejugal region with condyles.



FIGS 33-38.

*Dolicheremaeus pustulatus* sp. n. — 33: body in dorsal view, 34: seta *ro*, 35: seta *le*, 36: body in ventral view, 37: dorsosejugal region with condyles, 38: lateral part of prodorsum.

I dedicate the new species to Prof. Dr. D. H. Murphy (National University of Singapore) the renown collembologist and soil zoologist, who helped very much the mission of the Geneva Museum.

**Dolicheremaeus pustulatus** sp. n.

**M e a s u r e m e n t s :** Length: 972  $\mu$ m, width: 405  $\mu$ m.

**P r o d o r s u m :** Lamellar cuspis long, ending far anteriorly, in front of the insertion of lamellar setae. The lamellae not straight, but slightly curved medially. Lateral lamelliform expansion arched anteriorly (Fig. 38), bending over rostral setae. Tutorium well developed. Rostral setae much shorter than lamellar ones, both pairs finely ciliate. Interlamellar setae blunt at tip. Sensillus fusiform, directed outwards, surface roughened. Interlamellar region ornamented by some irregular tubercles, pustules or short rugae, exobothridial region pustulate. Two pairs of prodorsal condyles present, inner pair (co. pm.) very wide, outer one (co. pl.) very small (Fig. 37).

**N o t o g a s t e r :** Ten pairs of nearly equal notogastral setae present, all blunt at tip, like the interlamellar ones. Setae *c*, *1a* and *1m* arising nearly along a longitudinal row, *1a* originating at same distance from *c* and *1m*. Posterior part of notogastral surface punctate. Lateral pair of condyles (co. nl.) large, median pair very small and low, sometimes hardly observable (Fig. 33).

**L a t e r a l p a r t o f p o d o s o m a :** Anterior part of pedotecta I foveolate.

**C o x i s t e r n a l r e g i o n :** Epimeral borders well developed, epimeral fields separated from each other. All epimeral setae short (Fig. 36).

**A n o g e n i t a l r e g i o n :** Genital setae very short, setiform, anal and adanal ones similar to notogastral setae. No essential difference in lengths existing among them.

**L e g s :** Type of ultimate setae: L-L-S-S. Two setae on tibia and tarsus of legs IV dilated and pennate.

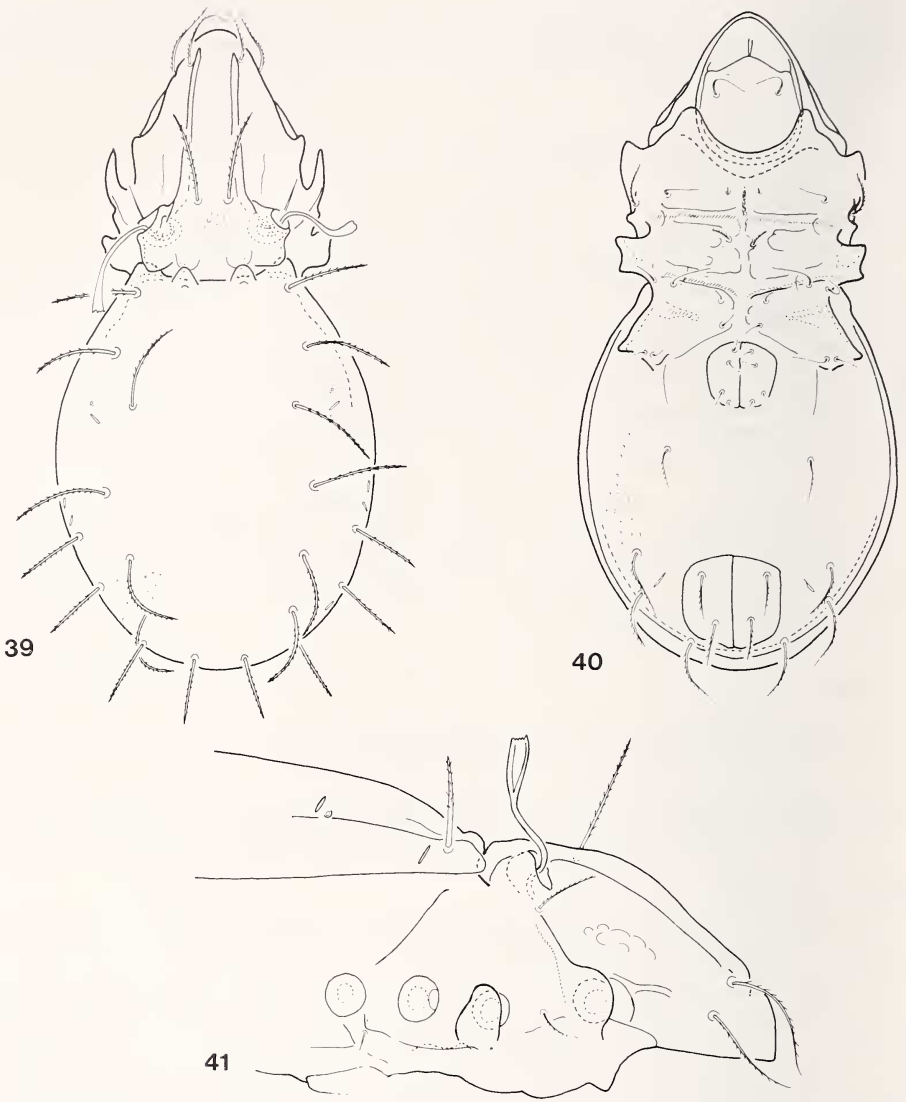
**M a t e r i a l e x a m i n e d :** Holotype: Sum-85/6; 1 paratype: from the same sample. Holotype: MHNG and paratype (1220-PO-86): HNHM.

**R e m a r k s :** The new species belongs to a species group, which is characterized by the fusiform sensillus and the spiniform notogastral setae of the equal length (*D. wallworki*, Aoki, 1967, *D. variolobatus* Hammer, 1981, *D. pannosus* Hammer, 1981, etc.). It stands nearest to *D. variolobatus*, however, it is distinguished from it and from the other related species by the arched lateral lamelliform expansion, the shape of the condyles in the sejugal region, and by the tuberculate and pustulate interlamellar region.

**Dolicheremaeus singaporensis** sp. n.

**M e a s u r e m e n t s :** Length: 400-493  $\mu$ m, width: 192-252  $\mu$ m.

**P r o d o r s u m :** Lamellae straight, weakly converging anteriorly. Lateral lamelliform expansion very short, ending far from the insertion of rostral setae. Rostral and lamellar setae distinctly barbed, setiform, interlamellar setae stronger and longer than the preceding ones. Sensillus long, with a cuneiform head. Two pairs of well-developed



FIGS 39-41.

*Dolicheremaeus singaporensis* sp. n. — 39: body in dorsal view, 40: body in ventral view, 41: lateral part of prodorsum.

and separate prodorsal condyles present. The lateral pair (co. pl.) larger than the median ones. Exobothridial region without any sculpture (Fig. 41).

**N o t o g a s t e r :** Notogastral condyles similar to the prodorsal ones, lateral pair also larger than the median pair. Surface with weak sculpture. Lyrifissures *ih* and *ips*



situated anteriorly to seta  $h_3$ . Gland opening in front of lyrifissure *im*. Ten pairs of long, bacilliform well ciliate notogastral setae present, no great differences among them, setae  $p_1$ - $p_3$  and  $h_3$  slightly shorter than  $lp$  or  $n_2$  (Fig. 39).

**Coxisternal region:** Apodemes well developed, borders also well visible. Epimeres 3-4 framed by *bo. 4* posteriorly. All epimeral setae ciliate, setae *lc* situated far posteriorly to pedotecta I. Pedotecta II-III angulate posteriorly (Fig. 40).

**Anogenital region:** A sharp line parallel with the genital aperture observable. Genital and aggenital setae thin, anal and adanal ones much thicker and longer. Lyrifissures *iad* situated far from anal aperture in apoanal position.

**Legs:** Type of ultimate setae: L-L-L-L, but setae (*u*) very short. Solenidium  $\omega_1$  blunt at tip,  $\omega_2$  much thinner and longer, directed backwards.  $\varepsilon$  very short. Setae *pv* on tarsus and *v* on tibia IV dilated, plumose.

**Material examined:** Holotype: Sum-85/6; 10 paratypes: from the same sample. Holotype and 7 paratypes: MHNG and 3 paratypes (1221-PO-87): HNHM.

**Remarks:** The new species belongs to a species-group which may be characterized by the lyrifissure *ips* situated anteriorly to seta  $h_3$ . On this basis it stands near to *Dolicheremaeus wallworki* Aoki, 1967, and *D. elongatus* Aoki, 1967; however, it is distinguished from both and the other congeners, too, by the shape of the sensillus and the length of the notogastral setae.

#### ***Dolicheremaeus variolatus* sp. n.**

**Measurements:** Length: 518-534  $\mu\text{m}$ , width: 207-222  $\mu\text{m}$ .

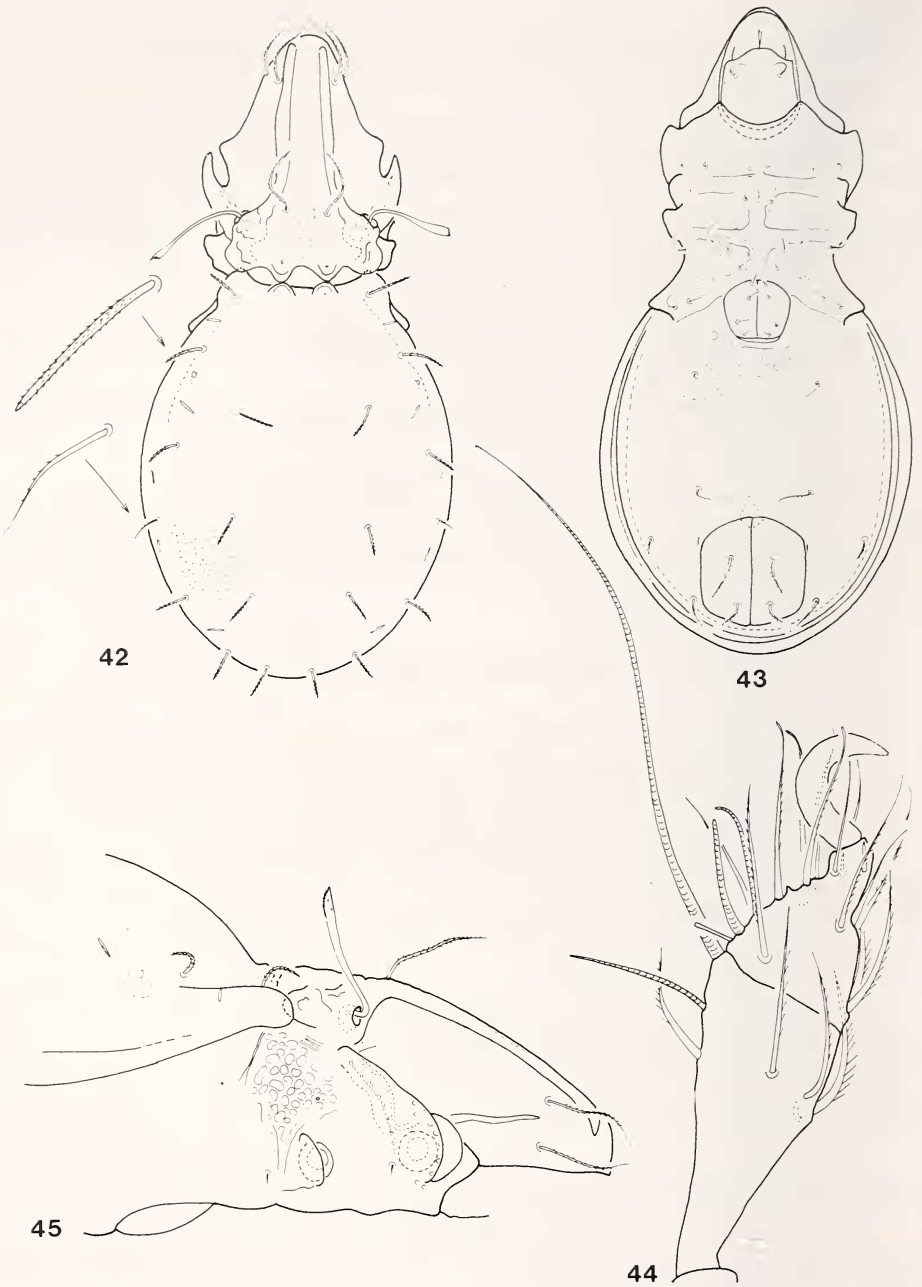
**Prodorsum:** Lamellae long, with clearly rounded cuspis (Fig. 42). Lamellar setae arising comparatively far from them, lamellar and rostral setae simple, setiform, well ciliate. Interlamellar setae slightly longer and thicker than the preceding two pairs, exobothridial setae minute. Sensillus long, gradually widened distally, head asymmetrical, spiculate at tip. Anterior prodorsal surface smooth, lamellar surface finely foveolate. Tutorium absent; lateral lamelliform expansion weak, straight, directed towards the insertion of lamellar setae but not reaching it. Both pairs of notogastral condyles well developed, connected with each other.

**Notogaster:** Behind the lateral notogastral condyles a deep hollow present laterally. Both pairs of condyles well separated, the lateral pair (*co. nl*) larger than the median ones. Ten pairs of particularly short notogastral setae present, nine pairs of them bacilliform, distinctly ciliate or barbed, setae  $p_3$  thin, setiform, scarcely ciliate. Notogastral surface foveolate medially and punctate laterally and posteriorly.

**Lateral part of podosoma:** Pedotecta I foveolate anteriorly, pedotecta II-III simple. Sejugal region with polygonate sculpture laterally (Fig. 45).

**Coxisternal region:** Apodemes and borders well developed, *ap. 1* fused with the short sternal apodeme, *bo. 4* also well observable. All epimeral setae simple, very short, and ciliate.

**Anogenital region:** Ventral plate foveolate, genital and anal plates smooth (Fig. 43). All setae — excepting anal setae — thin and simple. Anal setae clearly more dilated than adanal ones. Lyrifissure *iad* originating quite near to the anal aperture, close to its anterior corner.



FIGS 42-45.

*Dolicheremaeus variolatus* sp. n. — 42: body in dorsal view, 43: body in ventral view, 44: leg I, 45: lateral part of prodorsum.

**Legs:** Type of ultimate setae: S-S-S-S. Solenidium  $\omega_2$  of tarsus I longer but thinner than  $\omega_1$ , but not flagellate at tip.  $\varepsilon$  very short,  $\omega_1$  four times longer than  $\varepsilon$  (Fig. 44). No dilated setae on tibia and femur of leg IV.

**Material examined:** Holotype: Sum-85/6; 1 paratype: from the same sample. Holotype: MHNG and paratype (1222-PO-87): HNHM.

**Remarks:** The new species is well characterized by the very short and different notogastral setae, and by the sculpture of the notogaster. On the basis of these characters it can be distinguished from all the other species of the genus *Dolicheremaeus* Jacot, 1938.

### **Ocellotocepheus gen. n.**

**Diagnosis:** Family *Otocepheidae*. Body wide, short, notogaster high and rounded. Bothridium open anteriorly. Lateral lamelliform expansion present, tutorium absent. Podosoma without ornamentation laterally. Two pairs of prodorsal and two pairs of notogastral condyles present, anterior margin of notogaster very wide, condyles originating far from each other. One pair of bigger and one pair of smaller tubercles present, in the latter a gland opens laterally, the bigger median tubercles also have a short tube in the middle of them. Pedotecta II-III asymmetrical, fish-tail shaped. Epimeral setal formula: 3-1-3-3, anogenital setal formula: 4-1-2-3. Genital plate dark brown. Ultimate setae of legs very short or minute, their type: L-L-L-L.

**Type species:** *Ocellotocepheus tuberculatus* sp. n.

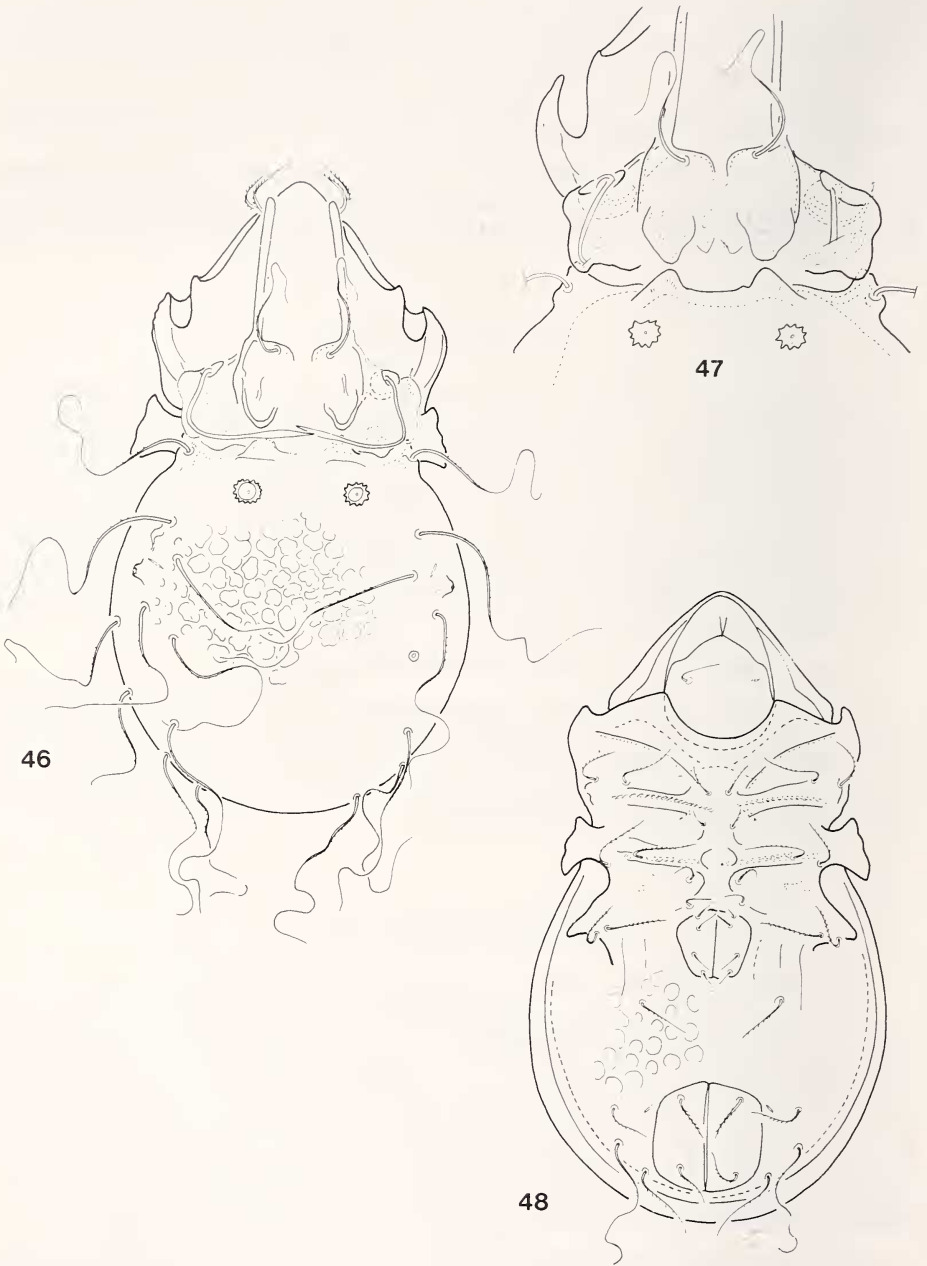
**Remarks:** The relations of this new genus are rather problematic; disregarding the four tubercles with the gland openings (?) any ranging into a known genus of the family *Otocepheidae* Balogh, 1961 on the basis of the habitus, the opening of the bothridium and the shape of pedotecta II-III is uncertain and not advisable. Therefore the establishment of a new genus is unavoidable.

### **Ocellotocepheus tuberculatus sp. n.**

**Measurements:** Length: 359-390  $\mu\text{m}$ , width: 202-227  $\mu\text{m}$ .

**Prodorsum:** Lamellae highly raised from the surface of prodorsum, their cusps rounded, and ramifying basally in to three parts in front of the insertion of interlamellar setae (Fig. 46). Bothridium very shallow, opening anteriorly. Sensillus very long, directed backwards and inwards, with a short, fusiform head. Its peduncle smooth, though one cilium near the head present. Lamellar and rostral setae simple, thin, interlamellar setae very long, flagellate, exobothridial setae minute, simple (Fig. 49). Lateral prodorsal condyles very wide, composing with the bothridial scale a large protuberance. Median prodorsal condyles (co. pm.) also well developed (Fig. 47).

**Notogaster:** Two pairs of nearly equally big notogastral condyles present. Notogastral surface smooth anteriorly and ornamented by polygonal reticulation medially and posteriorly. Around the median tubercles small triangular spines observable. Ten pairs of long, flagellate, finely roughened notogastral setae present, no difference existing among them. Setae *c* arising on the lateral notogastral condyles. Lyrifissure *ips* originating between setae  $h_3$  and  $p_3$ .



FIGS 46-48.

*Ocellotocepeus tuberculatus* gen. n., sp. n. — 46: body in dorsal view, 47: dorsosejugal region with tubercles, 48: body in ventral view.

**Lateral part of podosoma:** Pedotecta I normal, pedotecta II-III asymmetrical, well developed, waved laterally in dorsal view.

**Coxisternal region:** Apodemes and borders mostly observable, but not visible on epimeres 3 and 4. Epimere 1 with an arched, but nearly transversal lath (line). Epimeral setae thin, comparatively long, setae  $1b$ ,  $1c$ ,  $3b = 3c = 4b = 4c$ . All setae well ciliate.

**Anogenital region:** Surface of ventral plate areolate, some fine longitudinal lines also present running parallel with the genital plates (Fig. 48). Aggenital, anal and adanal setae long and thin; setae  $ad_1$  and  $ad_3$  simple,  $ad_2$  (!) flagellate, similar to the notogastral setae. All finely ciliate or roughened.



FIGS 49-50.

*Ocellotocepheus tuberculatus* gen. n., sp. n. — 49: lateral part of prodorsum, 50: leg I.

**Legs:** Solenidia of tarsus I of different length,  $\omega_1$  short, bacilliform,  $\omega_2$  long, directed backwards,  $\varepsilon$  also long (Fig. 50). All setae ( $u$ ) of tarsi I-IV very fine, hardly visible.

**Material examined:** Holotype: Sum-85/6, 15 paratypes: from the same sample. Holotype and 10 paratypes: MHNG and 5 paratypes (1223-PO-87) HNHM.

**Remarks:** The new species stands very far from all the heretofore known Otocephoid taxa, since the above described structures on the notogaster are unknown in this family.

ORIBATELLIDAE Jacot, 1925  
**Lamellobates orientalis** Csiszar, 1961

Material examined: Sum-85/6: 8 specimens.

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